USSR

KIR'YANOV, B. F., MARCHENKO, T. V., SKREBNEV, A. A., KHABIBULLIN, N. F.

UDC: 8.74

"On the Problem of Generating Pseudorandom Numbers by a Shift Register With Logic Feedback"

Tr. n.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo (Works of the Scientific Research and Design Institute on Introducing Computer Technology Into the National Economy), 1971, vyp. 8, pp 94-101 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V501)

[No abstract]

1/1

USSR   UDC 547.091:632.936.2

KOVALEV, B. G., ISHCHENKO, R. I., MARCHENKO, V. A., and FILIPPOVA, M. P.,
All Union Scientific Research Institute of Biological Methods of Plant Pro-
tection, Kishinev

"Synthetic Studies in the Area of Insect Attracting Materials (Sex Attractants).
I. Synthesis of 2-Methyl-7-octadecene Oxide (Disparlure) -- Sex Attractant
of Gypsy Moth Parthetria Dispar L."

Abstract: Alkylation of dodecynyllithium with isoheptyl bromide was carried
out in phosphoric acid hexamethyltriamide. The reaction product -- 2-methyl-
7-octadecyne (I) -- was hydrogenated in hexane over Lindlar catalyst yielding
cis-2-methyl-7-oxadecene. This material was epoxidized with nonoperphtallic
acid in chloroform, yielding Disparlure. Reduction of (I) with sodium in
liquid ammonia yielded trans-2-methyl-7-octadecene which could be used for
production of trans-disparlure. Preliminary field trials showed this synthetic
material to be biologically active in 0.25-0.01 mg doses per trap, retaining
their sex attracting activity for prolonged periods under field conditions.

1/1

USSR

UDC 547.26'118

MARCHENKO, V. A., YAKUSHIN, F. S., TSVETKOV, YE. N., KABACHNIK, M. I., and SHATENSHTEYN, A. I.

"Effect of Solvating Organophosphorus Additives on the Kinetics of Protophilic Deutero Metabolism"

Abstract: A study was made of the kinetics of the reaction of deuterohydrogen metabolism of 9-D-fluorene with tertiarybutyl alcohol catalyzed with tertiary lithium butylate in the presence of additives of organophosphorus compounds with different substitutions on the phosphorus atom.
     An analysis of the relation between the enthalpy and entropy of the activation of the reaction indicates the presence of two reaction series corresponding to different mechanisms of solvation of the alcoholate cation by additives with one and two electron donor centers. The efficiency of the organophosphorus compounds as sulfating agents in the given reaction depends to a great extent on the spatial factors. A linear relation was found between the values of lg k (25°) and the values of H defined for the same solutions with which the kinetic measurements were performed. The indicator was CH-acid similar with respect to structure to the substrate of the deutero-hydrogen exchange reaction.
1/1

1/2   045   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--AMPLIFICATION OF SHORT SUBHARMONIC PULSES IN A PARAMETRIC AMPLIFIER
   WITH A BACKWARD WAVE -U-
AUTHOR-(03)-GORSHKOV, A.S., MARCHENKO, V.F., SHCHIPAKIN, S.D.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), VOL. 11, NO. 1, P.
   87-6 (1970)
DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--HARMONIC FUNCTION, LASER R AND D, DIODE CIRCUIT, BACKWARD WAVE
   AMPLIFIER, PARAMETRIC AMPLIFIER, TRANSMISSION LINE, MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1393   STEP NO--UR/0188/70/011/001/0087/0088

CIRC ACCESSION NO--AP0138403
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0138403
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE MECHANISM OF
  AMPLIFICATION OF STRONG SUBHARMONIC PULSES (SUCH AS APPEAR IN LASER
  AMPLIFIERS IN THE REGION OF FULL SATURATION), BY MEANS OF A MODEL
  CONSISTING OF AN ARTIFICIAL TRANSMISSION LINE WITH A PERIODIC
  DISTRIBUTION OF DIODES. SOME OSCILLOGRAMS ARE ILLUSTRATED AND
  DISCUSSED.

UNCLASSIFIED

USSR

KOLTUNOV, V. S., and MARCHENKO, V. I.

"Study of the Reaction Between U(IV) and HNO_2 Catalyzed by Fe(III) Ions"

Abstract: Using a spectrophotometric method the kinetics of oxidation of U(IV) with nitrous acid in presence of Fe(III) ions and in nitric acid solution with constant ionic strength of $\mu = 3$ was studied. It has been shown that the reaction course is of the first order in respect to U(IV) and Fe(III) and of the zero order in respect to HNO_2. The reaction rate is inversely proportional to the concentration of H^+ ions. Activation energy is 17.8 kcal/mole. On the basis of the results obtained a conclusion was drawn that the oxidation of U(IV) occurs in two stages and is limited by the interaction of U(IV) with Fe(III).

1/1

USSR

POKRYSHEV, V. R., KOVAL'CHENKO, M. S., and MARCHENKO, V. L., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

UDC 669.534.8.621.762.4

"Vacuum Hot Forming of Metal Powders Using Ultrasonic Vibrations"

Abstract: Analysis of the process of powder compaction within the scope of the theory of volume viscous flow indicates an increase in effective pressure of hot forming with the application of ultrasonic vibrations. Application of ultrasound at steady-state stage of creep of the powder particles during hot forming appears to promote the creep and temporarily disturbs the steady-state flow. In hot forming the creep rate of Fe and Ni particles is proportional to the square of stress; creep appears to be controlled by the climb of dislocations. The effectiveness of ultrasonic vibrations decreases with increased temperatures. (6 illustrations, 7 bibliographic references)

1/1

MARCHENKO, V. I., and POKIDYSHEVA, L. N., Institute of Epidemiology and Micro-
biology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow

"Investigation of Interaction Between Interferon, Antibodies, and Leukocytes
in In-Vitro Experiments"

Abstract: Mutual effects of the presence of interferon and antibodies in
plasma on the production of antibodies or interferon by immune and nonimmune
leukocytes and on the total immunological titers against a number of viruses
grown in chick fibroblasts were studied using chicken, mouse, and rabbit anti-
sera and human and chicken leukocytes. Newcastle disease virus (NDV) anti-
bodies present in homologous (chicken) antiserum in a concentration 20 times
smaller than that in heterologous (rabbit) antiserum completely inhibited in-
terferon production in chicken leukocyte suspensions. Mutually enhancing anti-
viral effects of interferon and antibodies against NDV and influenza A/WSN
virus were regularly observed only when the antisera were homologous to the
tissue cultures in which the total antiviral effect was being determined.
Chicken leukocytes washed from antiserum and immune to NDV and Chikungunya
virus produced as much interferon as nonimmune white blood cells. NDV-immune
leukocytes added to a culture of infected chick fibroblasts partly inhibited
1/2

USSR

MARCHENKO, V. I., et al, Voprosy Virusologii, No 4, Jul./Aug 71, pp 456-459

the development of the disease, while nonimmune leukocytes exerted no in-
hibitory action. In all probability, immune leukocytes, in contrast to non-
immune leukocytes, block the infected cells and thus prevent the spread of the
virus infection throughout the tissue.

2/2

M

USSR   UDC 576.858.095.383

SOLOV'YEV, V. D., MARCHENKO, M. I., DYUYSALIYEVA, R. G., BABAYANTS, A. A., and
POKIDYSHEVA, L. N., Institute of Epidemiology and Microbiology imeni N. F.
Gamaleya, Academy of Medical Sciences USSR, Moscow

"Stimulation of Interferon Formation in Producing Cells by Pretreating them with
Interferon"

Abstract: Pretreating human and chicken leukocytes, fibroblasts of skin muscle
tissue of human and chick embryos, human amnion and chorioallantoic membrane of
chick embryo with interferon results in stimulation of subsequent interferon pro-
duction in those tissues. Tissues supporting multiplication of the virus-
inducer (Newcastle disease virus) treated with large doses of interferon showed
inhibited interferon formation while those treated with small doses exhibited
stimulated interferon formation. Either large or small doses of interferon
stimulated interferon production of cells not supporting virus multiplication.
The stimulating effect reached a maximum after 2 hours, and disappeared after 24
hours. The stimulation and inhibition process of interferon production is
species-specific. Stimulation of interferon formation was also observed after
pretreatment of the tissues with small doses of the virus inducer.

1/1

1/2   021   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--STIMULATION OF INTERFEROGENESIS IN PRODUCING CELLS BY THEIR
  PRETREATMENT WITH INITERFERON -U-
AUTHOR-(05)-SOLOVYEV, V.D., MARCHENKO, V.I., DYUYSALIYEVA, R.G.,
  BABAYANTS, A.A., POKIDYSHEVA, L.N.
COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 150-155

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INTERFERON, LEUKOCYTE, MUSCLE TISSUE, NEWCASTLE DISEASE VIRUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0745   STEP NO--UR/0402/70/000/002/0150/0155

CIRC ACCESSION NO--AP0108951
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0108951

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRETREATMENT WITH INTERFERON OF
   HUMAN AND CHICKEN LEUKOCYTES, FIBROBLASTS OF SKIN MUSCLE TISSUE OF HUMAN
   AND CHICK EMBRYO, HUMAN AMNION AND CHORIO ALLANTOIC MEMBRANE OF CHICK
   EMBRYO RESULTS IN STIMULATION AND EARLIER START OF SUBSEQUENT INTERFERON
   PRODUCTION IN THESE TISSUES. TREATMENT OF TISSUES SUPPORTING
   MULTIPLICATION OF THE VIRUS INDUCER (NEWCASTLE DISEASE VIRUS) WITH LARGE
   DOSES OF INTERFERON CAUSED INHIBITION OF INTERFEROGENESIS IN THEM, WHILE
   SMALL DOSES RESULTED IN STIMULATION OF INTERFEROGENESIS.   CELLS NOT
   SUPPORTING VIRUS MULTIPLICATION RESPONDED BY STIMULATION OF INTERFERON
   PRODUCTION TO TREATMENT WITH BOTH LARGE AND SMALL DOSES OF INTERFERON.
   THE STIMULATING EFFECT REACHED MAXIMUM AT 2 HOURS AND DISAPPEARED AT 24
   HOURS. THE PROCESS OF STIMULATION AND INHIBITION OF INTERFERON AND
   PRODUCTION IS SPECIES SPECIFIC. ENHANCEMENT OF INTERFEROGENESIS WAS
   ALSO OBSERVED AFTER PRETREATMENT OF THE TISSUES WITH SMALL DOSES OF THE
   VIRUS INDUCER.

USSR

BUNKIN, F. V., KRASYUK, I. K., MARCHENKO, V. M., PASHININ, P. P., PROKHOROV,
A. M., Physics Institute imeni P. N. Lebedev, Academy of Sciences, USSR

"Investigation of the Structure of a Spark Produced in the Focussing of a Pico-
second Laser Pulse in Gases"

Abstract: Research is conducted on the formation of points of strong nonlinear
scattering of laser radiation and breakdown in air, nitrogen, and argon due to
the focussing of a ruby laser radiation pulse with a duration of 20 -- 100 pico-
seconds and a power of about 2×10^7 watts. The mechanism of this phenomenon,
which is linked to the self-focussing of laser radiation in a gas, is discussed.
An analysis is given of the results of determination of the breakdown thresholds
by means of short-focus and long-focus lenses. The part played by the self-
focussing of laser radiation in the development of breakdown at optical frequen-
cies is assessed. 3 figures. 16 bibliographic entries.

1/1

- 50 -

USSR   UDC 539.374

MARCHENKO, V. M.

"Thermoplastic Stresses and Strains of a Fuel Tank During the Process
of Emptying It"

Translation: This article contains an investigation of the quasi-
stationary uniform problem of thermal plasticity: analysis of the stres-
sed and strained states of a round cylindrical shell of a dural fuel
tank with a horizontal axis occurring when it is heated nonuniformly
during the process of continuous emptying. The Bauschinger effect and
variability of the plastic flow (with respect to the space coordinate)
are considered during unloading. An exact solution is obtained for
the linear law of work-hardening.

1/1

- 76 -

UDC: 621.373.531(088.8)

USSR

MARCHENKO, Ye. Ya.

"A Time-Distributed Pulse Shaper"

USSR Author's Certificate No 262154, filed 3 Jun 68, published 9 Jun 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G131 P)

Translation: This Author's Certificate introduces a time-distributed pulse
shaper which contains pulse transformers, thyristor keys, a cut-off tran-
sistor, a storage capacitor, a control unit and a power supply. To simplify
the design and improve pulse parameters, the primary windings of the pulse
transformers are connected to the thyristor keys in m series circuits which
are interconnected in parallel and connected through the cut-off transistor
to the power supply. The collector of the cut-off transistor is connected
to the common point of the thyristor switch anodes, and the storage capacitor
is connected to the power supply terminals.

1/1

- 18 -

USSR

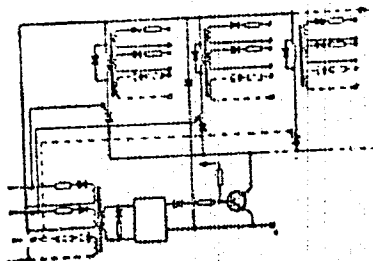MARCHENKO, YA. YE.

"A Shaper of Time-Distributed Pulses"

Abstract: This Author's Certificate introduces a shaper of time-distributed pulses. The device contains pulse transformers, thyristor switches, a cutoff transistor, a storage capacitor, a control unit and a power supply. As a distinguishing feature of the patent, the unit is simplified and pulse parameters are improved by connecting the primary windings of the pulse transformers to the thyristor switches in m consecutive circuits interconnected in parallel and connected to the power supply through the cutoff transistor. The collector of the cutoff transistor is tied to the common point of the anodes of the thyristor switches. The storage capacitor is connected across the terminals of the power supply.

1/2

USSR

MARCHENKO, YA. YE., Otkrytiya, Izobreteniya, Promyshlennyye Gorantsy, Tovarnyye
Znaki, No 6, 1970, p 31, patent No 262154

2/2

UDC 331.02.001.33

USSR

MARCHENKO, YE. N., KANDROR, I. S., and ROZANOV, L. S., Institute of Labor
Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, and
Institute of the Hygiene of Railroad Transportation

"Principles of Classifying Work by Strenuousness, Harmfulness, and Danger"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 3, 1972, pp 4-12

Abstract: Modern industrial jobs are classified into four categories -- light,
medium, heavy, and very heavy -- on the basis of the following criteria:
physical power (expressed in watts and exerted by each part of the body as
well as the maximum weight of objects lifted); static load (in kg/sec, exerted
on each part of the body as well as work posture and freedom of movement);
and psychic tension with such subcategories as attention (number of important
objects observed simultaneously, % duration of concentrated attention, %
duration of active operation, average number of information signals observed
per hr, and emotional tension), number of the shift, analysis of visual and
auditory feedback, volume of operative memory, intellectual difficulty, and
monotony. The industrial environment is classified into eight classes
(from optimum to dangerous) according to the following criteria: temperature
and humidity (cooling and heating the body); concentration of toxic substances;
concentration of industrial dust; intensity of electric and magnetic fields,
and industrial noise and vibration.

1/1

USSR   UDC: /621.391.82:(621.396.44:621.673.32)7.001.24

MARCHENKO, Yu. F.

"Computing Transient Noise Caused by the Nonlinearity of the Ampli-
tude Characteristics in the High-FrequencyChannel of a Multichannel
Radio Relay System, With a Mixed FM Signal"

Tr. NII radio (Transactions of the Scientific Research Institute
of Radio) 1970, No. 2, pp 18-27 (from RZh-Radiotekhnika, No. 3,
March, 71, Abstract No. 3A308)

Translation: Consideration is given to the increase in transient
noise in the telephone channels of a radio relay system with fre-
quency multiplexing and FM, under the action of a mixing FM sig-
nal with substantial detuning. It is shown that the nonlinearity
of the amplitude characteristic of the high-frequency channel having
elements transforming parasitic AM into FM leads to the appearance
of additional transient noise in the channels. Computational for-
mulas are obtained; experimental results are given. Annotation

1/1

USSR

LOVITSKIY, V. A., MARCHENKO, Yu. S.

"System for Diagnosis and Prediction of Diseases Based on Pathology of the Human Gustatory Analyzer. Report II."

Translation: A system for preliminary diagnosis of diseases based on data on gustatory analyzer pathology is run on the Ural-4 digital computer.

1/1

USSR

LOVITSKIY, V. A., MARCHENKO, Yu. S.

"System for Diagnosis and Prediction of Diseases Based on Pathology of the Human Gustatory Analyzer. Report I."

Translation: Data on disorders of the gustatory analyzer in various diseases are used as a basis for a system of preliminary diagnosis.

1/1

2

USSR   UDC: 8.74

SHABANOV-KUSHNARENKO, Yu. P., YERYOMIN, G. S., KACHKO, Ye. G., MARCHENKO, Yu. S., PCHELINOV, V. P., TISHCHENKO, V. V.

"On the Problem of Axiomatic Construction of Mathematical Models"

Translation: Mathematical methods are proposed for describing objects which have known input and output signals. Authors' abstract.

1/1   - 58 -

UDC 576.851.45.095

USSR

GURLEVA, G. G., DOMARADSKIY, I. V., KHALYAPINA, Ye. Ye., ALUTIN, I. M., TARANOVA, V. N., PUSHNITSA, N. P., KOL'TSOVA, Ye. G., MARCHENKOV, V. I., SHCHEGLAKOVA, N. M., and GRIGOR'YAN, E. G., Rostov-on-Don Scientific Research Antiplague Institute

"Biological Properties of Pasteurellae Isolated From Various Species of Animals"

Abstract: A comparative study was performed on P. avicida, P. cuniculicida, B. avisepticus, B. suisepticus, B. bovisepticus, and B. ovisepticus (a total of 27 strains) isolated from chickens, pigs, suckling pigs, calves, steers, sheep, house mice, and rabbits in various geographic areas in 1936-1967. The tinctorial, cultural, morphological, and biochemical properties of these strains as well as their sensitivity to antibiotics, nucleotide DNA composition, and virulence to albino mice, albino rats, and pigeons revealed that they constitute a homogeneous group and belong to a single species -- P. multocida. Significantly, all the strains investigated are sensitive to colicines E+J, F, G, J+G, and S5. If the findings are confirmed by supplementary investigations, the colicin test may well be used for a differential diagnosis of P. multocida.

- 81 -
1/1

USSR   UDC 543.42.062

NEKHAY, A. P. and MARCHENKOV, V. V., Order of Lenin Physico-Technical Institute
imeni A. F. Ioffe

"A Device for the Stabilization of Spectrometer Characteristics"

USSR Author's Certificate No 366363, Filed 12 May 68, Published 16 Jan 73
(from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7,
Mar (a) 73, Claim No 1238314/26-25)

Translation: A device for the stabilization of spectrometer characteristics
containing an adress n-class computer, a decoder, a reversible (k-1) class
computer, two circuits of correspondence with (k-1) inputs, two valves with two
permitting and one forbidding inputs each and difference rate meters of any
well known type, distinguished by the fact that in order to increase the
stability of spectrometer characteristics and simplify the circuits, the out-
puts of the smaller (k-1) class computer are unified with the inputs of the
apparatus in "1" analog class of the reversible computer, the "All 1" and "All
0" conditions of which are decodified by the circuits of correspondence unified
accordingly with the forbidding inputs of the valve, the permitting inputs of
which are unified with the outputs "0" and "1" of the k class adress computer,
while the second permitting input, with the output decoder, is connected with
1/2

USSR

NEKHAY, A. P. and MARCHENKOV, V. V., USSR Author's Certificate No 366363,
Filed 12 May 68, Published 16 Jan 73

the chiel n-k class adress computer, outputs of the valves are unified with
the inputs of addition and subtraction of the reversible computer and the dif-
ference ratemeter, the output of which is the output of the device desired.

2/2

- 131 -

USSR   UDC: 621.43.001.3

ANTONOV, O. G., DOLINSKIY, D. V., MARCHEVSKIY, V. P., MEL'NICHENKO, R. M.,
OTSECHKIN, Yu. G., PAVLENKO, G. V., TOVKANETS, V. Ye., SAMANTSEV, K. B.,
Institute of Automation, Khar'kov Polytechnical Institute

"An Antistall Device"

Translation: This Author's Certificate introduces an antistall device
which may be used for controlling centrifugal compressore. The device con-
tains pickups for the rate of flow and pressure drop across the compressor,
an amplifying adder and a regulating valve installed on a bypass line be-
tween the pressure and suction channels. As a distinguishing feature of
the patent, in order to improve the reliability and accuracy of maintaining
the limiting flow rate, a pickup is connected to the amplifying adder which
measures the difference in pressures between the wake and kernel of the
flow behind the vanes of the exit guide cone to correct control in accor-
dance with variation of the static characteristic of the compressor.

1/1

Balaban, A. S., Pil'ganchuk, P. N., Imereli, V. B., Stepanenko,
L. K., Parkhomenko, A. I., Min'kovskaya, S. M., Voznesenskly, I. A.,
Vishnyakov, I. Ye., Zinoveyev, A. I., Razumovskiy, O. V., Khrulev,
V. V., Politova, A. Ye., Khayzeruk, Ye. M., Smirnov, V. I.,
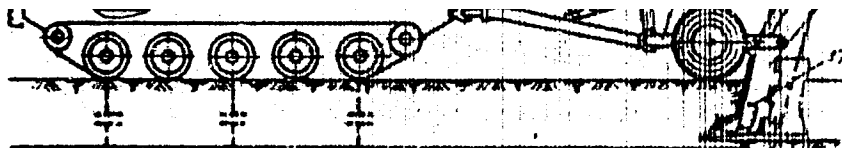Malakhova, V. M.

1/2   *18*

19770733

19770734

UDC: 681.325.65

• USSR

MARCHUK, A. A., NESTERENKO, B. B., Institute of Mathematics, Academy of Sciences of the UkrSSR

"An Analog-Digital Converter"

USSR Author's Certificate No 329668, filed 16 Oct 70, published 10 Apr 72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 73, abstract No 1B467 P)

Translation: This invention, which pertains to the field of computer technology, is designed for converting the internal language of an analog-digital complex. Translation devices for analog-digital complexes are well-known; e. g., the "Saturn". However, use of the M-220 computer in the "Saturn" complex makes specific demands on the translation device. The device made in accordance with these requirements cannot be used in a small analog-digital computer complex utilizing a keyboard computer.
    The proposed analog-digital converter differs in that its functional possibilities are extended by adding a kipp oscillator, trigger device, and rewrite device. One input of the trigger device is connected to the computer module, and the other input is connected through a frequency meter

1/2

USSR

MARCHUK, A. A., NESTERENKO, B. B., USSR Author's Certificate No 329668

and a converter to a network model. The output of the trigger device is
connected through the kipp oscillator to the rewrite device, which is con-
nected, in turn, to the computer module and to the counting decades of the
frequency meter.
    The output of the rewrite device is connected to the first input of
the computer module. In addition, the converter is simplified by incor-
porating an inverter, coincidence gate, and register in the computer module.
The input of the inverter is connected to the first input of the computer
module, and the output of the inverter is connected through the coincidence
gate to the register whose output is connected to the coincidence gate.
The input of the register is connected to the second input of the computer
module.

2/2

USSR

YEVSEYEV, G. T., MARCHUK, A. A., KHOMOVNENKO, M. G., CHIRKOV, M. K., Candidate
of Physical and Mathematical Sciences, SHAUMAN, A. M., Candidate of Physical
and Mathematical Sciences

"Keyboard Data Input Device for Computers"

Abstract: This article contains a description of a keyboard electronic digital
data input device built from two ferrite cores with external magnetization.
The device is designed for generating a single pulse which proceeds synchronously
with the basic cycle frequency to the computer after each complete movement
of one of the keys. The device was designed to satisfy requirements of high
reliability and high speed. By using two different outputs from one key for
entering the code and blocking, the effect of vibration and other mechanical
effects are excluded, and all remaining keys are blocked effectively on
pressing one of them. The input device is constructed as a closed automatic
control system insuring uniqueness of the input data.

1/1

- 53 -

UDC 681.326

USSR

ZBARYSHEVSKIY, V. M., MARCHUK, A. A., NESTERENKO, B. B., and PANCHISHIN, V. I.
Institute of Mathematics, Academy of Sciences Ukrainian SSR

"Device for Controlling the Structure of a Computer Medium"

USSR Authors' Certificate No 312273, Cl. G 06 g 7/46, filed 7 Apr 70,
published 7 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No 5, May 72, Abstract No 5B221P)

Translation: The invention has to do with computer devices used to control the
structure of an optron analog network in the solution of partial differential
equations. Special-purpose devices for solving partial differential equations
by the modeling method are well known: for example, the "USM-1" and the "Vega,"
which use a network of resistors as the analog medium. However, the USM-1 net-
work model does not permit control of the network structure at sufficient
speed: i.e., changing of the resistances of the resistors according to the
necessary law. The automated Vega network model permits the resistances of
the resistors constituting the networks to be changed automatically according
to a given program as an equation is solved. This is done by connecting to the
network a resonator of the requisite rating from an available set by means of
an electromagnetic relay. Such a principle of controlling the structure of

1/2

USSR

ZBARYSHEVSKIY, V. M., et al., USSR Authors' Certificate No 312273

the medium makes the entire device cumbersome and requires the presence of a
large number of precision resistors with various ratings. The purpose of the
invention is to develop a device for electronically setting and controlling
the structure of a computer medium (analog network) that is based on optrons.
The proposed device makes it possible to set the resistance values of the
photoresistors of the optrons automatically according to a given program and
to change them according to the requisite law during the solution of an equa-
tion by changing the filament current of the optron light sources according
to the corresponding law.

2/2

- 4 -

MARCHUK, A. N.

FOREIGN SCIENCE AND TECHNOLOGY CENTER

U.S. ARMY

ARMY MATERIEL COMMAND

FSTC-HT-23-364-72

RESONANT EXCITATION OF A PLANE DIELECTRIC WAVEGUIDE
THROUGH A SUPERCRITICAL LAYER BY A PLANE WAVE

by

L. N. Deryugin, A. N. Marchuk, V. Ye. Sotin

COUNTRY: USSR

USSR

UDC 691-413;620.191.33

MARCHUK, A. N., Candidate of Technical Sciences, and TRET'YAKOV, N. I., Engineer

"Crack Prevention in Honeycomb Products (experience of reinforced concrete plant No 5 of "Bratskzhelezobeton" combine)"

Abstract: The experience of operation of reinforced concrete products plant No 5 of "Bratskzhelezobeton" combine has indicated that cracks arise in honeycomb panels during manufacture, transport and installation. Studies performed, plus the literature research and the experience of similar enterprises indicate that it is impossible to eliminate technological cracks. Many of the panels found to be cracked were re-tested for strength and found to satisfy the norms. The problem is simply to reduce crack formation to the minimum possible level by avoiding sharp changes in cross sections, sharp temperature changes between products and the surrounding medium and by using the best available types of cement.

1/1

26

1/2   026   UNCLASSIFIED   PROCESSING DATE--13NOV70

TITLE--RADIATION FROM A PLANE DIELECTRIC WAVEGUIDE -U-

AUTHOR-(03)-MARCHUK, A.N., SOTIN, V.YE., DERYUGIN, L.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VUZ. RADIOELEKTRONIKA, VOL. 8, MAR. 1970, P. 309-316

DATE PUBLISHED----MAR70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--DIELECTRIC WAVEGUIDE, DIELECTRIC MATERIAL, SURFACE WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0543   STEP NO--UR/0452/70/008/000/0309/0316

CIRC ACCESSION NO--AP0124238
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0124238
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE EMISSION OF
  SURFACE WAVES FROM AN EXTENDED SEGMENT OF A PLANE DIELECTRIC WAVEGUIDE
  INTO A CONTINUOUS DIELECTRIC MEDIUM LOCATED AT A GIVEN DISTANCE FROM THE
  WAVEGUIDE AND HAVING A LARGER REFRACTIVE INDEX. THE RADIATION FACTOR
  AND THE PHASE CONSTANTS OF SURFACE E AND H WAVES ARE CALCULATED, AND THE
  DIRECTIONAL PROPERTIES OF THE EMISSION ARE ANALYZED. THE OPTIMAL
  DISTANCE BETWEEN THE DIELECTRIC MEDIUM AND THE WAVEGUIDES IS CALCULATED
  FROM THE VIEWPOINT OF MAXIMUM GAIN.

UNCLASSIFIED

USSR   M   UDC 621.372.8

DERYUGIN, L. N., MARCHUK, A. N., SOTIN, V. YE.

"Resonance Excitation of a Plane Dielectric Waveguide Through a Plane Wave
Supercritical Layer"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 973-980

Abstract: This paper is the continuation of an earlier one written by the
same authors investigating an asymmetrical dielectric waveguide consisting
of a conducting layer between two media of given dielectric constants. The
present paper considers the excitation of this waveguide. Assuming the
incident wave to be polarized normal to the plane of incidence, the authors
write the equations for the electric fields in each medium of four layers --
the fourth layer is the one providing the excitation -- and find the mag-
netic field components of the wave by using the Maxwell equation. For waves
polarized along as well as normal to the plane of incidence, the authors
find that the maximum achievable value of the amplitude in the resonator
is inversely proportional to the average dielectric loss angle in the
resonator layers. The system is tuned to resonance either by changing
the angle of incidence of the wave or by varying the frequency of the
exciting wave; to obtain maximum field amplitude in the resonator, the
1/2

USSR

DERYUGIN, L. N., et al., Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 973-980

system is tuned by varying the thickness of the supercritical layers. The authors assert that such resonance systems can be used for measurement of small losses in thin films or nonlinear transformations in relatively small power sources.

2/2

USSR

DERYUGIN, L. N., MARCHUK, A. N., SOTIN, V. Ye.

"Radiation from a Flat Dielectric Waveguide"

Kiev, Izvestiya Vuzov SSSR--Radioelektronika, Vol 13, No 3, 1970,
pp 309-116

Abstract: This is a follow-up article of an earlier one published
by the same three authors in the journal named above (1967, 10,
No. 2, p. 134.) The earlier article was devoted to consideration
of a flat asymmetrical dielectric waveguide designed for the trans-
mission of visible light and infrared waves with a dielectric
layer between media of different dielectric constants. The present
article considers the radiation from a similar waveguide in a
delaying medium with a second layer at some specified distance
from the first. Beginning with the Huygens principle, the authors
find a relationship for the radiation angle in terms of the index
1/2

USSR

of refraction in one of the media and the delay in the waveguide.
The radiation coefficient and the phase constant of the E and H
surface waves are computed. The gain factor is computed and a
condition for maximum gain is found. Through the use of an ex-
ample, the authors show how the derived equations can be used to
calculate the field distribution along the radiating waveguide.

2/2

Acc. Nr.: *AN0040369*

Ref. Code: *UR 9012*

AUTHORS-- MARCHUK, G., ACADEMICIAN, DEPUTY CHAIRMAN, SIBERIAN DEPARTMENT OF THE ACADEMY OF SCIENCES, U.S.S.R., DIRECTOR OF THE COMPUTATION CENTER, AND YERSHOV, A., DOCTOR OF PHYSICAL-MATHEMATICAL SCIENCES, HEAD OF A DEPARTMENT OF THE COMPUTATION CENTER

TITLE-- COMPREHENSIVE PROBLEMS OF ELECTRONIC COMPUTERS

NEWSPAPER-- PRAVDA, APRIL 9, 1970, P 3, COLS 1-3

ABSTRACT-- THE ARTICLE URGES A MORE RAPID DEVELOPMENT OF COMPUTER SOFTWARE, TRAINING OF PROGRAMMERS, AND SHARING OF COMPUTER TIME IN ORDER TO MAKE FULL USE OF HARDWARE CAPABILITIES.

AN AUTOMATED INFORMATION CENTER, "AIST", IS BEING TRIED ON EXPERIMENTAL BASIS AT THE COMPUTATION CENTER OF THE SIBERIAN BRANCH OF THE ACADEMY OF SCIENCES. IT CONSISTS OF TWO M-220 RAPID COMPUTERS, WHICH ARE CONTROLLED BY THE "MINSK-22" COMPUTER. THE CENTER CAN HANDLE SIMULTANEOUSLY 32 SUBSCRIBERS.

Reel/Frame

19741808

4

1/2   012   UNCLASSIFIED   PROCESSING DATE---30OCT70
TITLE--INTERNAL GRAVITATIONAL WAVES IN A REALLY STRATIFIED OCEAN -U-

AUTHOR-(02)-MARCHUK, G.I., KAGAN, B.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA,
  VOL VI, NO 4, 1970, PP 412-422
DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEAN, GRAVITATION WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0123   STEP NO--UR/0362/70/006/004/0412/0422

CIRC ACCESSION NO--AP0125939
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0125939

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXTENSIVE LITERATURE HAS BEEN
  DEVOTED TO INTERNAL GRAVITATIONAL WAVES IN THE OCEAN. THIS PROBLEM
  (WITH AN ARBITRARY DENSITY DISTRIBUTION) WAS SOLVED FOR THE FIRST TIME
  BY FJELDSTAD, BUT AS POINTED OUT BY GRUEN, THAT SOLUTION IS APPLICABLE
  ONLY TO THE CASE OF VERY LONG WAVES, SO THAT AT PRESENT DIFFERENT PARTS
  OF THE SPECTRUM OF INTERNAL GRAVITATIONAL WAVES IN THE OCEAN HAVE BEEN
  STUDIED NONUNIFORMLY. THIS PAPER GIVES THE DERIVATION OF CHARACTERISTIC
  CURVES AND CHARACTERISTIC SOLUTIONS CORRESPONDING TO INTERNAL
  GRAVITATIONAL WAVES FOR A REALLY STRATIFIED OCEAN. IT IS SHOWN THAT
  HIGH FREQUENCY OSCILLATIONS ARE CONCENTRATED INA RELATIVELY THIN LAYER
  OF MAXIMUM VALUES OF THE VAISALA FREQUENCY.   FACILITY:
  COMPUTATION CENTER, SIBERIAN DEPARTMENT ACADEMY OF SCIENCES USSR.
  FACILITY: INSTITUTE OF OCEANOLOGY.

UNCLASSIFIED

1/2   007   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--CERTAIN PROBLEMS IN GLOBAL REGULARIZATION -U-

AUTHOR-(02)-MARCHUK, G.I., ATANBAYEV, S.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL. 190, NO. 3, 1970, PP
  527-530
DATE PUBLISHED------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--MATHEMATIC OPERATOR, ALGEBRAIC EQUATION, DIFFERENCE EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0459   STEP NO--UR/0020/70/190/003/0527/0530

CIRC ACCESSION NO--AT0113364
                      UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0113364
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IF G IS AN N DIMENSIONAL REGION
WITH BOUNDARY GAMMA SUB0 AND L SUB2 (G) DENOTES THE SPACE OF ALL
FUNCTIONS SQUARED AND SUMMED OVER THE REGION G WITH THE NORM SHOWN ON
MICROFICHE. THE FOLLOWING PROBLEM IS CONSIDERED IN THE REGION OMEGA
EQUALS G TIMES (0, T) WITH THE END SURFACE GAMMA EQUALS GAMMA SUB0 TIMES
(0, T) SHOWN ON MICROFICHE. WHERE L IS A LINEAR, POSITIVE, DEFINITE
DIFFERENTIAL OPERATOR OF (2) OF THE (S MINUS 1) ORDER AND SELF CONJUGATE
UNDER THE BOUNDARY CONDITIONS SHOWN ON MICROFICHE. THIS PROBLEM IS
CORRECT IN THE TIKHONOV SENSE IN A CLASS OF SOLUTIONS LINEARLY BOUNDED
WITH RESPECT TO T IN THE METRIC L SUB2 (G). AN APPROXIMATE SOLUTION OF
THE PROBLEM (1)-(3) HAS BEEN MADE USING A LOCAL METHOD OF CALCULATION IN
WHICH EQUATION (1) IS REPLACED BY THE DIFFERENCE EQUATION SHOWN ON
MICROFICHE. WHERE DELTA T EQUALS T-N, U PRIMEK EQUALS U(X, K DELTA T)
(K EQUALS 1, 2, ...,M), AND EQUATION (4) IS SOLVED FOR EACH FIXED K. IN
THIS ARTICLE, A GLOBAL METHOD OF CALCULATING IS USED TO FIND A SOLUTION,
AND THE IDEA OF THIS METHOD IS THE FOLLOWING: ASSUME THAT A DIFFERENCE
NET IN INTRODUCED INTO THE REGION G WITH UNIFORM STEPS H SUBI (I EQUALS
1, 2,...,M). EQUATION (1) IS REPLACED BY THE DIFFERENCE EQUATION SHOWN
ON MICROFICHE, AND THE DIFFERENCE EQUATION IS WRITTEN FOR ALL INTERNAL
INTERSECTIONS OF THE GRID FOR ALL TIMES IN THE INTERVAL 0 IS SMALLER
THAN OR EQUAL TO T IS SMALLER THAN OR EQUAL TO T. WITH BOUNDARY
CONDITIONS (3), THIS REDUCES TO SOLVING THE SYSTEM OF LINEAR ALGEBRAIC
EQUATIONS.   FACILITY: COMPUTER CENTER OF THE SIBERIAN DEPARTMENT
OF THE ACADEMY OF SCIENCES USS, NOVOSIBIRSK.

UNCLASSIFIED

Acc. Nr: *AP0043741*

Ref. Code: UR 0050

PRIMARY SOURCE: Meteorologiya i Gidrologiya, 1970, Nr 3,
                  PP /2-/7

ON A STATEMENT OF THE PROBLEM ON THE STRUCTURE OF FLOWS IN BAROCLINIC SEA TAKING INTO ACCOUNT THE MACROTURBULENT EXCHANGE

G. I. Marchuk

A deduction of linearized equations of motion of baroclinic incompressible fluid in ocean is given. A new and more complete kinematic condition on ocean surface is introduced. and based on further assumptions on the structure of integrals of these equations, a significant conclusion on independence of hydrophysical fields in baroclinic sea upon horizontal macroturbulent exchange. is made.

REEL/FRAME
19770147

M

USSR

MARCHUK, G. I., Academician, and ATANBAYEV, S. A., Computer Center of the
Siberian Department of the Academy of Sciences USSR, Novosibirsk

"Certain Problems in 'Global' Regularization"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 3, 1970, pp 527-530

Abstract: If G is an m-dimensional region with boundary Γ_0 and $L_2(G)$ denotes
the space of all functions squared and summed over the region G with the
norm

$$\|u\|_2^2 = \iint \ldots \int |u|^2 \, dx, \quad u = u(x, t), \quad x = (x_1, x_2, \ldots, x_m), \quad 0 \leq t \leq T,$$

the following problem is considered in the region $\Omega = G \times [0, T]$ with the end
surface $\Gamma = \Gamma_0 \times [0, T]$

$$\partial u / \partial t = \mathcal{L}u, \tag{1}$$
$$u(x, 0) = u_0(x), \quad x \in G, \tag{2}$$

where L is a linear, positive, definite differential operator of (2) of the (s-1)

1/3

USSR

MARCHUK, G. I., and ATANBAYEV, S. A., Doklady Akademii Nauk SSSR, Vol. 190,
No. 3, 1970, pp 527-530

order   and   self-conjugate under the boundary conditions

$$\mathscr{P}_1(u) = \mathscr{P}_2(u) = \ldots = \mathscr{P}_{s-1}(u) = 0. \qquad (3)$$

This problem is correct in the Tikhonov sense in a class of solutions linearly
bounded with respect to t in the metric $L_2(G)$. An approximate solution of the
problem (1)-(3) has been made using a local method of calculation in which equa-
tion (1) is replaced by the difference equation

$$(u^k - u^{k-1}) / \Delta t = \mathscr{P} u^{k-1}, \qquad (4)$$

where $\Delta t = T/M$, $u^k = u(x, k\Delta t)$ $(k = 1, 2,\ldots,M)$, and equation (4) is solved for
each fixed k. In this article, a global method of calculating is used to find
a solution, and the idea of this method is the following: Assume that a dif-
ference net is introduced into the region G with uniform steps h_i $(i = 1, 2,\ldots,$

$\ldots,m)$. Equation (1) is replaced by the difference equation

$$(u^k - u^{k-1}) / \Delta t = \beta \mathscr{P}_h u^k + (1 - \beta) \mathscr{P}_h u^{k-1} \qquad (0 < \beta \le 1),$$

2/3

USSR

MARCHUK, G. I., and ATANBAYEV, S. A., Doklady Akademii Nauk SSR, Vol. 190, No. 3 1970, pp 527-530

and the difference equation is written for all internal intersections of the grid for all times in the interval $0 \le t \le T$. With boundary conditions (3), this reduces to solving the system of linear algebraic equations

$$A\phi = \hat{f},\qquad(5)$$

where A is a quadratic matrix and ϕ and f are the grid vector functions. Assuming equation (5) exists and symmetrizing the equation, one obtains

$$A\phi = f,\qquad(6)$$

where $\quad A = \begin{pmatrix} 0 & A \\ A^* & 0 \end{pmatrix},\quad \psi = \{\varphi^*, \varphi\}',\quad f = \{f, f^*\}',\quad f$ is a certain vector function. A

method is given to accelerate the convergence of the approximate solution of equation (6) to the solution of the problem (1)-(3).

3/3

"On the Genesis of El-Tor Cholera"

Abstract: A theory is suggested for the development of El-Tor cholera to its
recent pandemic proportions. First it is argued that El-Tor cholera cannot
have originated in the Celebes, Indonesia as a disease endemic to that island.
El-Tor cholera agents had been isolated together with classical cholera agents
prior to its detection in the Celebes in India and Thailand. Moreover El-Tor
vibrios may have been misidentified in other parts of the world as classical
vibrios due to a misconception about differences in the vibrios' hemolytic
properties. Instead, it is suggested that El-Tor vibrios developed in India
in the first half of the 20th Century as an offshoot of the Koch vibrio in
response to environmental changes, following improvements in living conditions,
which provided a selective advantage to the El-Tor vibrio. Thereafter its
spread throughout the world was facilitated by increasing mobility of popula-
tions. In the first stage of its existence it was rare enough in other parts
1/2

USSR

of Asia and Europe that it was unable to cause epidemics and was detected only sporadically. With international epidemic control measures ineffective against this form, by the 1950's it accumulated in secondary endemic foci, caused local epidemics there, and finally after being concentrated to critical levels it spread to develop the seventh cholera pandemic. The authors discount the theory that significant changes occurred during this period in the pathogenicity of El-Tor vibrios and favor socio-economic factors as dominant in the rise of El-Tor cholera.

2/2

USSR   UDC 616.932-08:615-092

NIKIFOROV, V. N., Professor, SHCHERBAK, Yu. F., Candidate of Medical Sciences,
LEVITOV, T. A., Docent, and MARCHUK, L. M.

"Modern Fundamentals of Pathogenetic Therapy of Cholera"

Abstract: Patients with algid cholera suffer from acute intoxication, acidosis,
loss of body fluids and salts, and disrupted intermediary metabolism, and there-
fore require immediate treatment. A study was undertaken in which 66 cholera
patients were divided into several groups and treated with bacteriophages (ad-
ministered enterally or intramuscularly), with or without intramuscular tetra-
cycline. For each group, an appropriate control subgroup was treated with a
placebo. Blood tests and stool analyses were performed on each patient before
and during the treatment. The bacteriophages were found to be no more effective
than the placebo. Tetracycline definitely improves the condition of the patient,
however. The basic treatment is still intravenous administration of salt solu-
tions (rehydration), accompanied by enterally administered tetracycline. Immedi-
ate intravenous infusion of 5-4-1 salt solution (5 g NaCl, 4 g NaHCO$_3$, and 1 g
KCl per liter of double distilled water) is recommended. The total dose shall be
about 10 percent of the patient's body weight or, more precisely: 4×10^3 x(specific
1/2

USSR

NIKIFOROV, V. N. et al, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 10-17

gravity of patient's plasma - 1.025) x patient's weight in kilograms = milliliters of salt solution to be administered. The solution should be infused as follows: first liter over a period of 10 min, second liter, 20 min, and the remainder, 30-60 min. The solution is subsequently infused in volumes equal to the total loss of body fluids (feces, urine, and vomitus). If EKG disturbances develop, the 5-4-1 solution should be temporarily replaced with 6-4 solution (6 g NaCl and 4 g NaHCO$_3$ per liter of double distilled water). No cardiovascular drugs are necessary. Initial, drastic recovery is observed 20-25 minutes after treatment is begun; 8-12 hours later, patients are able to sit up in bed and eat. Tetracycline becomes effective after 24 hours, helping the body to rapidly eliminate the Vibrio comma.

2/2

USSR

UDC 517.1:615.7/9

MARCHUK, R. YA., LIPKAN, G. N., ZAIKA, A. P., KONDRATYUK, V. I. and IVANOVA, ZH. M.

"Detoxification and Anticholinesterase Action of Two Representatives of Acid Fluorides of Alkyl Esters of Alkylthiophosphonic Acid"

Translation: In experiments on rabbits it is shown that there is no direct relationship between toxicity, anticholinesterase activity and detoxification in the tissues for isopropyl and ethyl ethers of methylfuuorothiophosphonic acid.

1/1

1

USSR

Aleksandrova, G. A., Vil'kotskiy, V. A., Kornilov, B. V., Marchukov, L. V.,
Skvortsov, I. M.

"Anomalies in the Magnitude and Temperature Dependence of the Electron Mobility
in Epitaxial Layers of Gallium Arsenide"

Abstract: A study was made of the anomalies in the magnitude and temperature
dependence of the electron mobility detected in the epitaxial layers of n-type
GaAs which cannot be explained by the mechanism of scattering on the polar
lattice vibrations, on ionized or neutral centers and the space charge regions
of the microinhomogeneities. The anomalies were detected in a group of films
which was characterized by low mobility at $300°K$. The films were grown from
the gas phase in the $Ga-AsCl_3-H_2$ system on semi-insulating GaAs substrates
alloyed with chromium and oriented with respect to the (100) plane. The
characteristic curves for the anomalous function $\mu = f(\mathcal{H})$ and the cathode
luminescence spectra of the films with   different mobilities are plotted.
The carrier concentration in the films at $300°K$ measured by the Van der Pauw
method [Phil. Res. Rep., No 13, 1, 1958] was $2 \cdot 10^{15}-2 \cdot 10^{17} cm^{-3}$, and the mobili-
ties were within the limits of $150 \leq \mu \leq 2000 \ cm^3/volt$-second . In the

1/2

USSR

investigated range of 77-300°K, the electron concentration decreased by no more than two times with a reduction in temperature. The cathode luminescence spectra of the films with the reduced values of μ are characterized by the fact that in the spectra a band must occur with a peak at 0.52-0.6 electron volts comparable to or significantly exceeding the 0.8 electron volt band ascribed to chromium. From an analysis of the cathode luminiscence spectra of the films with different values of μ at 300 and 77° K it was found that the absolute value of μ decreases by two orders as the peak of the 0.56 electron volt band shifts to the short-wave side to 0.64 electron volts. This extraordinary behavior of the mobility is attributed in part to the oxygen atoms.

2/2

1/2   015   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--LOCAL X RAY SPECTRAL ANALYSIS OF MUTUAL DIFFUSION IN BINARY SYSTEMS
  FORMING CONTINUOUS SERIES OF SOLID SOLUTIONS. III. CONCENTRATION
AUTHOR-(03)-BOROVSKIY, I.B., MARCHUKOVA, I.D., UGASTE, YU.E.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 308-17

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--BINARY ALLOY, DIFFUSION COEFFICIENT, SOLID SOLUTION, X RAY
  SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0341   STEP NO--UR/0126/70/029/002/0308/0317

CIRC ACCESSION NO--AP0129573
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0129573
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERAL LAWS GOVERNING THE
   CONCN. CHANGE OF THE MUTUAL DIFFUSION COEFF. IN BINARY SYSTEMS FORMING A
   CONTINUOUS SERIES OF SOLID SUBSTITUTIONAL SOLNS. ARE EXAMD. THE ANAL.
   OF THE RESP. CURVES IS PERFORMED ON THE BASIS OF THE L. S. DARKEN
   RELATION (1948). THE PROBLEM CONCERNING THE CONCN. CHANGE OF THE
   DIFFUSION COEFFS. OF THE COMPONENTS IS EXAMD. EXP'TL. AND THEORETICALLY.
      FACILITY: INST. MET. IM. BAIKOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2   029   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--REACTION OF MOLTEN GALLIUM WITH COPPER -U-

AUTHOR--TIKHOMIROVA, O.I., PIKUNOV, M.V., RUZINOV, L.P., MARCHUKOVA, I.D.

COUNTRY OF INFO--USSR   M

SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 5(6), 699-703

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER ALLOY, GALLIUM ALLOY, LIQUID METAL, INTERMETALLIC
COMPOUND, CHEMICAL REACTION, COPPER POWDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0624   STEP NO--UR/0369/70/005/006/0699/0703

CIRC ACCESSION NO--AP0105603
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0105603
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE MECHANISM OF THE REACTION OF
   LIQ. GA WITH POWD. CU AT 100DEGREES IS STUDIED.   ON THE BASIS OF THE
   INVESTIGATION OF THE CHARACTERISTICS OF THE GROWTH OF THE THETA PHASE
   (CUGA SUB2) THE METHOD OF CALCN. OF THE AV. EFFECTIVE THICKNESS OF THE
   LAYER OF THE INTERMETALLIC PHASE IS WORKED OUT.   IT IS ESTABLISHED THAT
   THE GROWTH OF THE THETA PHASE, ARISING AS THE RESULT OF THE REACTION OF
   LIQ. GA WITH POWD. CU CONFORMS TO A PARABOLIC RELATION.

UNCLASSIFIED

1/2   022   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--CONCERNING THE METHOD OF CONSTRUCTING DIAGRAMS OF STATE BY MEANS OF
    LOCAL X RAY SPECTRUM ANALYSIS -U-
AUTHOR-(03)-BOROVSKIY, YU.B., MARCHYKOVA, I.D., UGASTE, YU.E.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TECRETICHESKIYE I EKSPERIMENTAL'NYE METODY ISSLEDOVANIYA
REFERENCE--REF. ZH. METALLURGIYA, NR 3, 1970, ABSTR. NR 3I26ORETICAL AND
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TERNARY ALLOY, X RAY SPECTROSCOPY, ALLOY PHASE DIAGRAM,
    CONSTITUTION DIAGRAM, METAL DIFFUSION, BINARY ALLOY, X RAY SPECTRUM,
    HIGH PURITY METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0966   STEP NO--UR/0000/69/000/003/0166/0172

CIRC ACCESSION NO--AR0122985
                          UNCLASSIFIED

CIRC ACCESSION NO—AR0122985

ABSTRACT/EXTRACT---(U) GP-0- ABSTRACT. THE SPECIFIC NATURE OF THE
CONSTRUCTION OF DIAGRAMS OF STATE OF BINARY AND TERNARY METAL SYSTEMS BY
THE METHOD OF DIFFUSION LAYERS, WITH THE USE OF LOCAL X RAY SPECTRUM
ANALYSIS, IS CONSIDERED.   ON THE BASIS OF AN ANALYSIS OF THE LITERATURE
DATA, AS WELL AS OF THEIR OWN RESEARCH, THE AUTHORS SHOW THAT DIAGRAMS
OF STATE FOR BINARY METAL SYSTEMS CAN, IN PRINCIPLE, BE COMPLETELY
CONSTRUCTED BY THE DIFFUSION LAYER METHOD IF DIFFUSION ZONES OF
SUFFICIENT WIDTH ARE CULTIVATED NOT ONLY BETWEEN PURE METALS, BUT ALSO
BETWEEN SINGLE PHASE ALLOYS.   IT IS ALSO SHOWN THAT IN ORDER TO INCREASE
THE PRECISION OF THE CONCENTRATION BOUNDARIES OF PHASE EXISTENCE, IT IS
USEFUL TO STUDY TWO PHASE EQUILIBRIUM ALLOYS BY THE METHOD OF LOCAL X RAY
SPECTRAL ANALYSIS.   ATTENTION IS DRAWN TO THE NECESSITY FOR STUDYING
THE CONCENTRATION DEPENDENCE OF THE COEFFICIENT OF MUTUAL DIFFUSION,
SINCE THE KINETICS OF THE GROWTH OF THE DIFFUSION LAYERS ARE, OTHERS
CONDITIONS BEING EQUAL, DETERMINED BY THE VALUE OF THE COEFFICIENT OF
MUTUAL DIFFUSION. CONSIDERATION IS GIVEN TO THE PRINCIPLES AND
PROSPECTS OF USING THE METHOD OF DIFFUSION LAYERS FOR CONSTRUCTING
DIAGRAMS OF STATE OF TERNARY METAL SYSTEMS.

UNCLASSIFIED

USSR

DUSHAUSKENE-DUZH, N.-R. F., MARCHYULENENE, E. -D. P., NYANISHKENE, V. B., SHCHULIYENE, R. I., and POLIKARPOV, G. G.

"The Uptake of Radionuclides by Some Fresh-Water Hydrobionts"

Vil'nyus, Tr. AN LitSSR (Proceedings of the Academy of Sciences Lithuanian SSR), B, No 3 (59), 1972, pp 201-212 (from Referativnyy Zhurnal—Biologicheskaya Khimiya, No 5, 1973, Abstract No 5F1532)

Translation: As a result of investigations conducted under natural conditions in 1967-1968 (10 fresh water ponds in the Lithuanian SSR), it was established that the accumulation coefficients (AC) for ^{90}Sr and ^{210}Pb did not differ in fishes and molluscs, while in the case of plants the AC for ^{210}Pb was an order of magnitude less than that for ^{90}Sr. A definite correlation was found to prevail between the concentrations of ^{90}Sr and ^{210}Pb. The AC for ^{90}Sr and ^{210}Pb were found to depend on the ash content of the hydrobionts. The highest AC for ^{90}Sr, ^{137}Cs, ^{144}Ce, and ^{106}Ru were observed in the case of the phytoplankton and in the silt. Of the various radionuclides, ^{144}Ce had the highest AC in the hydrobionts, and ^{137}Cs in the silt. The AC of ^{90}Sr was relatively low in the hydrobionts and silt. The

1/2

USSR

DUSHAUSKENE-DUZH, N.-R.F., et al., Tr. AN LitSSR, B, No 3 (59), 1972, pp 201-212

Intense accumulation of ^{137}Cs, ^{144}Ce, and ^{106}Ru in the silt from the aquatic environment serves to decrease the uptake of these radionuclides by chironomid larva. The chironomid larva assimilate radionucleotides in the following quantities from a radioactive meal: ^{90}Sr — 10%, ^{137}Cs — 9%, ^{144}Ce — 11%, and ^{106}Ru — 6%. Year old carps assimilate 10% of the total quantity of ^{144}Ce in a radioactive meal (chironomids), which pass through their gastrointestinal tract. The uptake of ^{90}Sr, ^{137}Cs, ^{144}Ce, and ^{106}Ru by zebra mussels and chironomid larvae, of ^{90}Sr into the organisms of pond snails, and of ^{144}Ce by the year old carps occurs primarily from the aqueous environment, and in smaller quantities from the food. It was shown that fishes belonging to different trophic levels (carps and predatory fishes) accumulate ^{90}Sr to the same extent. Analogous findings held for ^{210}Pb. The AC for each of these radionuclides does not depend on the type of nutrition of the fish.

2/2

MARCHYULENENE, D. P. and NYANISHKENE, V. B.

"Accumulation and Distribution of ^{90}Sr, ^{137}Cs, ^{144}Ce, ^{106}Ru in Dreissena Polymorpha and in Lymnea Stagnalis"

Translation: It was established that the radionuclides under study are accumulated and distributed unevenly in individual tissues of many species of fresh water mollusks, such as Dreissena polymorpha and in pond snails, such as Lymnea stagnalis. The largest amount of radionuclides is accumulated in the shell, with 97, 77, 92, and 94% of ^{90}Sr, ^{37}Cs, ^{144}Ce, and ^{106}Ru in mollusks, and 90% of ^{90}Sr in pond snails of the total amount of each radionuclides accumulated in the whole body. Such a distribution of radionuclides in mollusks depends on the ability of certain tissues to concentrate the radionuclides and on the weight ratio of each tissue to the total weight of the mollusk.

1/1

1/2   016   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--SEX CHROMATIN AND MALIGNANCY -U-

AUTHOR-(02)-SHATS, V.YA., MARDAKHIASHVILI, SH.I.

CCUNTRY CF INFO--USSR

SOURCE--TSITOLOGIYA 1970 12(3), 273-81

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHROMATIN, GLAND, MITOSIS, TUMOR, REPRODUCTIVE SYSTEM, CANCER

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0429   STEP NO--UR/9053/70/012/003/0273/0281

CIRC ACCESSICN NO--AP0128000
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0128000
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AV. CONTENTS OF SEX CHROMATIN
OF DIFFERENT FORMS OF PATHOL. MAMMARY GLANDS AS COMPARED TO NORMAL
TISSUE ARE GIVEN. AN INVERSE RELATION EXIST BETWEEN THE MITOTIC COEFF.
AND THE NO. OF BARR BODIES IN THE TUMOR TISSUE. THE HIGHER THE COEFF.
THE LOWER THE TISSUE SEX CHROMATIN CONTENT. COMPARISONS ARE MADE
BETWEEN THE AMT. OF SEX CHROMATIN, THE VOL. AND PLOIDY OF THE CELL
NUCLEI, AND THE MITOTIC COEFF. IN NORMAL TISSUE AND MAMMARY GLAND
TUMORS. IT SEEMS WELL ESTABLISHED THAT DISAPPEARING OF BARR BODIES
CORRELATES WITH INCREASED TUMOR MALIGNANCY.   FACILITY: DEP. LAB.
DIAGN., INST. ONCOL., LENINGRAD, USSR.

UNCLASSIFIED

USSR   UDC 541.183.03

MARDALEYSHCHVILI, R. YE., DANELIYA, A. P., KON, M. YA.

"Adsorption Capacity of Higher and Lower Oxides of V, U and Mn
Obtained by Interconversion"

Abstract: The absolute numbers of Me and O adsorption centers
and the ratio of these numbers change with changing surface areas
during oxidation-reduction conversions of the higher and lower
oxides of metals. Specimens of three metals were studied:
vanadium (V_2O_5, V_2O_4 and V_2O_3), uranium (UO_3, U_3O_8 and UO_2) and
manganese (MnO_2, Mn_3O_4 and MnO). It was found that when oxida-
tion or reduction is performed at temperatures providing low
process rate, the number of Me centers on the surface does not
change, while the number of O centers changes to the same extent
as the change in the number of atoms (ions) of oxygen in the oxide
produced.

1/1

USSR

MARDALEYSHVILI, R. Ye., DANELIYA, A. P., KON', M. Ya.

Translation: The change in the surface of oxides of vanadium (V_2O_5, V_2O_4 and V_2O_3), uranium (UO_3, U_3O_8 and UO_2) and manganese (MnO_2, Mn_3O_4 and MnO) during mutual adsorption-reversible redox conversions of the oxides is studied by the method of adsorption of N_2, H_2, Ar, NH_3, O_2 $(C_2H_5)_2O$ and CO from the gas phase. It is shown that during these conversions, the absolute quantity of Me and O adsorption centers and their relationships are changed, while the share of surface atoms in relationship to the total number of atoms in the adsorbent does not change. In the opinion of the author's, the Me/O ratio is identical on the surface and in the volume of stoichiometric oxides. It is suggested that the degree of development of the surface be characterized by the ratio of the number of surface atoms, determined by the adsorption method, to the total number of atoms in the specimen of adsorbent.
1/1

USSR

TAGI-ZADE, T. A., MARDANLY, A. S., and EFENDIYEV, S. S.

"Study of the Survival Time of Leptospira in the Environment in the
Azerbaydzhan SSR"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 7, 1971, pp 94-96

Abstract: Of great interest from the epidemiological standpoint is the sur-
vival time of Leptospira in the environment in the Azerbaydzhan SSR, specif-
ically in the city of Baku, where Leptospira is found both in man and in
animals.

The survival time of Leptospira in different kinds of water (tap, rain, and
melted snow), and in human urine was studied under laboratory conditions. It
was found that in artificially infected Baku tap water (pH 7.0) Leptospira
remain viable about 34 to 38 days, in melted snow (pH 5.5) about 42 days, in
rainwater (pH 6.8) 16 to 29 days, in human urine (pH 5.0) 10 to 15 days, and
in tap water contaminated with urine 45 to 50 days. The morphological and
pathogenic properties of the Leptospira were also studied.

1/2

USSR

TAGI-ZADE, T. A., et al., Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 7, 1971, pp 94-96

Thus, the survival of Leptospira in different kinds of water and in human urine suggests that these sources may play a role in the spread of leptospirosis in the Azerbaydzhan SSR, particularly in the city of Baku.

2/2

USSR

TAGIZADE, T. A., EFENDIYEV, S. S., and MARDANLY, A. S.,

"Determination of Survival Period of Leptospira in Different Waters Under Conditions of the Azerbaydzhan SSR"

Baku, Azerbaydzhanaskiy Meditsinskiy Zhurnal, No 5, May 71, pp 53-59

Abstract: It has been established that sea water possesses therapeutic properties with respect to certain diseases. Undoubtedly, contamination of sea water by various waste products or waste waters reduces the therapeutic properties of sea water and also creates the hazard of spreading infections.
In this work the survival period of Leptospira was studied in different waters under conditions of the Azerbaydzhan SSR. The following conclusions were made. In the sea waters along the Shikhovo beach, Leptospira survive from 15 to 31 days, while in the sea waters of Buzovnov they live 10-31 days, after which they lose pathogenicity. Saprophytic microbes found in these waters affect survival of the Leptospira in sea water. In the rain, snow, and water supply system waters of Baku, Leptospira survive for a certain time without losing pathogenicity. The obtained results confirm the opinion held by a number of authors that Azerbaydzhan water conditions play a definite role in the spread of diseases caused by Leptospira.

1/1

TITLE--SOLVENT EFFECT ON SPIN SPIN COUPLING CONSTANTS IN PMR SPECTRA OF ORGANOPHOSPHORUS COMPOUNDS CONTAINING A P-O GROUP. I. GEMINAL CONSTANTS

AUTHOR-(05)-VINOGRADOV, L.I., SAMITOV, YU.YU., KESSEL, A.YA., NESTEROV, L.V., MARDANOVA, V.B.

COUNTRY OF INFO--USSR

SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 103-7

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLVENT ACTION, MAGNETIC RESONANCE, PROTON, SPECTRUM, ORGANIC PHOSPHORUS COMPOUND, DIELECTRIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605013/B04 STEP NO--UR/0379/70/006/001/0103/0107

CIRC ACCESSION NO--AP0140345

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140345

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. J SUBP-C-H CONSTS. WERE MEASURED FOR MEPOCL SUB2, MEPOCLOPH, MEPO(OPH) SUB2, MEP(O)CINET SUB2, AND MEP(O)(NET SUB2)OPH IN 8 ORG. SOLVENTS. CORRELATIONS J SUBP-C-H VS. (EPSILON MINUS 1)-(EPSILON PLUS N PRIME2-2) ARE DISCUSSED, WHERE EPSILON EQUALS DIELEC. CONST. OF SOLVENT. FACILITY: KAZAN. GOSUNIV., KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 53..27

VINOGRADOV, L. I., SAMITOV, YU. YU., KESSEL', A. YA., ... V.., and MARDANOVA, V. B., Kazan' State University, Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"Effect of Solvent on Spin-Spin Coupling Constants in PMR Spectra of Some Organophosphorus Compounds Containing P=O Group. I. Geminal Constants J_{P-C-H}"

Abstract: A study was made of the effect of nonaromatic and aromatic solvents on the geminal spin-spin coupling constant of P^{31} and H^1 nuclei in CH_3POCl_2, $CH_3POClOPh$, $CH_3PO(OPh)_2$, $CH_3POClN(C_2H_5)_2$ and $CH_3PON(C_2H_5)_2OPh$. There was found to be a linear decrease in J_{P-C-H} with an increase in the electric field of the reaction, with the decrease being sharper in aromatic solvents. It is concluded that a

1/3

USSR

VINOGRADOV, L. I., et al., Teoreticheskaya i Eksperimental'naya Khi-
miya, Vol 6, No 1, Jan-Feb 70, pp 103-107

positive sign is likeliest for the spin-spin coupling constant. Two
possible mechanisms for the spin-spin interaction through the pi-
electron system of the aromatic ring are suggested to explain the in-
crease in J_{p-C-H} as Cl atoms are displaced by OH:

1. The spin-spin interaction results from the pi-electron
current induced by the magnetic moment of the nucleus in the aromatic
ring, creating a local field on the second nucleus.

2. The spin-spin interaction occurs through the pi-electron
system of the aromatic ring according to the mechanism suggested by
H. M. McCONNELL for a long-range proton-proton interaction in aromat-
ic systems. This mechanism is apparently realized in the compounds
investigated here.

2/3

- 101 -

USSR

VINOGRADOV, L. I., et al., Teoreticheskaya i Eksperimental'naya Khimiya, Vol 6, No 1, Jan-Feb 70, pp 103-107

An explanation is given for some peculiarities in the variation of the reactivity of the studied compounds.

3/3

TITLE--EXAMINATION OF TRANSAMIDINASE AMIDINOTRANSPHERASE ACTIVITY IN THE
   BLOOD SERUM OF DOGS WITH EXPERIMENTAL PANCREONECROSIS -U-
AUTHOR-(03)-MARDASHEV, S.R., KARELINA, A.A., KARGASHIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,
   VOL 14, NR 3, PP 8-11
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PANCREATITIS, TRANFERASE, ENZYME ACTIVITY, NECROSIS,
   DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1923   STEP NO--UR/0396/70/014/003/0008/0011

CIRC ACCESSION NO--AP0127324
                            UNCLASSIFIED

CIRC ACCESSICN NO—AP0127324   UNCLASSIFIED   PROCESSING DATE—30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS WORK WAS DONE ON DOGS WITH
HEMORRHAGIC PANCREONECROSIS CAUSED BY THE ADMINISTRATION OF BILE INTO
THE PANCREATIC DUCT.   TRANSAMIDINASE (AMIDINOTRANSPHERASE) ACTIVITY WAS
REVEALED IN THE BLOOD OF THESE DOGS 6 TO 12 HOURS AFTER THE BEGINNING OF
PANCREONECROSIS. IN CASE OF PANCREATITIS CAUSED BY THE ADMINISTRATION
OF SODIUM TAUROCHOLATE WITH TRYPSIN INTO THE PANCREATIC DUCT,
PANCREONECROSIS OCCURRED COMPARATIVELY LATE AND TRANSAMIDINASE WAS
REVEALED IN THE BLOOD 18 HOURS AFTER THE ONSET OF THE AFFECTION.
FACILITY: KAFEDRA BIOKHIMII I MOSKCVSKOGO MEDITSINSKOGO INSTITUT.
  FACILITY: IM. I. M. SECHENOVA I LABORATORIYA ENZIMOLOGII INSTITUTA
BIOMEDKHIMII AMN SSR, MOSKVA.

UNCLASSIFIED

TITLE--INHIBITION OF BACTERIAL HISTIDINE DECARBOXYLASE BY HYDROXYLAMINE
   DERIVATIVES -U-

AUTHOR-(02)-BONCHAR, N.A., MARDASHEV, S.R.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(2), 224-8

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INHIBITION, HISTIDINE, ENZYME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0334   STEP NO--UR/0218/70/035/002/0224/0228

CIRC ACCESSION NO--AP0135827

UNCLASSIFIED

CIRC ACCESSION NO--AP0135827
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   MICROCOCCAL HISTIDINE
DECARBOXYLASE (I) WAS INHIBITED BY BETA AMINOOXY ALPHA ALANINE (II),
GAMMA AMINOOXY ALPHA AMINOBUTYRIC ACID, H_2NOH, OR AMINOOXYACETIC
ACID.   II AND H_2NOH INHIBITED I IRREVERSIBLY, BUT AMINOOXYACETIC
ACID INHIBITION WAS COMPETITIVE.   APPARENTLY, THESE COMPDS. COMBINE WITH
AN ESSENTIAL CARBONYL GROUP ON THE ACTIVE SITE OF THE ENZYME.
FACILITY: ALB. ENZYMOL., INST. BIOL. MED. CHEM., MOSCOW, USSR.

TITLE--IDENTIFICATION OF PSEUDOMONAS SP. AND THE EFFECT OF GROWTH
  CONDITICNS ON ASPARTASE AND GLUTAMINASE ACTIVITY -U-
AUTHOR-(03)-MARDASHEV, S.R., YEREMENKO, V.V., NIKOLAYEV, A.YA.

CCUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 11-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PSEUDOMOMAS, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTICNS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1414   STEP NO--UR/0220/70/039/001/0011/0017

CIRC ACCESSICN NO--AP0109476
                      UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70

Acc. Nr: AP0037246   M   Ref. Code: UR 0301

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16,
Nr 1, pp 99-100

THE POSSIBLE MECHANISM OF THE INHIBITORY EFFECT OF BARBITURATES ON OROTIC ACID BIOSYNTHESIS IN RAT LIVER SLICES

Fitsner, A. B.; Mardashev, S. R.

The Laboratory of Enzymology Institute of Biological and Medical Chemistry USSR
Academy of Medical Sciences, Moscow

The effect of FAD on inhibitory action of some barbiturates in enzymatic conversion of C^{14}-DL-carbamoylaspartic acid into orotic acid in rat liver slices was studied in vitro. It was estimated that FAD at molar relation to labelled substrate as 1:2 prevents the inhibition of orotic acid biosynthesis induced by barbamyl, nembutal or phenobarbital. It may be supposed that the mechanism of the inhibitory action of barbiturates on pyrimidine biosynthesis may be connected with their ability to form complexes with flavine coenzymes presented in dihydroorotate dehydrogenase.

D. m.

2

REEL/FRAME
19730173

UDC 577.155.3

USSR

KOVALENKO, N. A., KOZLOV, YE. A., GERASIMOVA, A. V., and MARDASHEV, S. R., Chair of Biochemistry, First Moscow Medical Institute imeni. I. M. Sechenov, and Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow

"Kinetic Characteristics of Clostridium Welchii SR-12 Glutaminase and the Effects of Some Ions of Its Activity"

Moscow, Biokhimiya, Vol 36, No 6, Nov/Dec 71, pp 1198-1203

Abstract: In the absence of ions, Cl. welchii SR-12 glutaminase exhibits a very low activity. Chlorides and other monovalent anions activate the enzyme and shift its optimum pH to lower values. A plot of reaction rate against substrate concentration yields an S-shped curve in the absence of monovalent anions and the Michaelis-Menten curve in their presence. The sigmoid shape of the above curve may be more or less pronounced, depending on Ph. The energy of activation is 16,950 cal/mole in the absence and 12,950 cal/mole in the presence of chlorides. In low concentrations, acetate, citrate, succinate, and other components of the tricarboxylic acid cycle activate the enzyme, but inhibit it when their concentration exceeds 10 mmoles/liter.

1/1

UDC 577.150.4

USSR

MARDASHEV, S. R., Academician, Academy of Medical Sciences USSR, GONCHAR, N. A., and DABAGOV, N. S. Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow

"4-Imidazolyl-3-aminobutanone-2 -- a New Inhibitor of Bacterial Histidine Decarboxylase (HDC) from Micrococcus Sp. N."

Moscow, Doklady Akademii Nauk SSSR, Vol 189, No 4, pp 895-898

Abstract: 4-Imidazolyl-3-aminobutanone-2 was obtained with its derivative produced by amination (NH_3). In a closed, dark glass vessel, the crystals of the title compound are preserved indefinitely in a refrigerator. In presence of light and air the ketone undergoes a color change through yellow to dark. As an inhibitor it is specific against histidine decarboxylase. It also inhibits lysine decarboxylase by 50%, and aspartate decarboxylase by 40%. It does not react with glutamate decarboxylase nor with tyrosine decarboxylase. The aminated derivative is a weak inhibitor (25%).
    The report from the Cardiology Institute of the Academy of Medical Sciences that the title compound and its derivatives, given i. v. to rats, caused a rise in blood pressure from 18-20 mm is of interest.

UR 0482

AA 0040511

M

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-76

236937 CUTTING TOOL PRODUCTION from multi-
component alloys, involves controlled
electrochemical etching at current densities of
3.8 A/cm2. Hard cermet alloy plates on a metal
support shaped to the dimensions of the tool
product are placed in the chamber for the etch-
ing process which is performed at current density
of 3-8 A/cm2, electrode gap of 0.5 mm, electrolyte
pressure 5 kg/cm2, treatment 1-3 minutes. Inten-
sive cobalt removal from the surface occurs in
treatment. The remaining projecting edges of the
tungsten carbide component are sharp and of high
hardness and are thus suitable for use as a cutting

AUTHORS: Yegorov, A. M.; Marder, A. G.

Tsentral'nyy Nauchno-Issledovatel'skiy Institut
Tekhnologii Mashinostroyeniya

18

197500 11

AA0040511

tool. The treated surface acquires a lattice of its own. The tool can be reclaimed quite simply after contaminating by the metal stripped in the etching process, by renewed electrochemical treatment.   26.12.67. as 1207809/25-8. EGOROV, A.M. and MARDER, A.G. Central Engineering Technology Inst. (10.6.69.) Bul.7/3.2.69. Class 48n, 491. Int.Cl. C23b, B23d.

19750012

USSR

UDC 539.3:534.1

BAYTELIYEV, T., and MARDONOV, B.

"The Propagation of Transient Waves in a Composite Half-Space"

Alma-Ata, Izvestiya Akademii Nauk, KazSSR, Seriya Fiziko-Matematicheskaya, No 3, May-Jun 72, pp 4-9

Abstract: A study was made of the problem of the elastic impact of two connected quadrant-planes of different elastic materials on a rigid and smooth barrier. The laid down conditions included continua of the normal component of the vector of dislocations and stress and also the absence of friction on the boundary of the interface. Motion equations of the media and the boundary conditions were applied for the function of volume expansion and rotations determined in the appropriate quadrant-planes. The problem was solved by the Sobolev-Smirnov method and expressions in quadrature form were derived for the functions of volume expansions and rotations. The solution can be used for the investigation of the behavior of composite elastic bodies under the action of dynamic loads. One illustr., thirteen formulas, two biblio. refs.

1/1

1/2   027   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--METHODS OF PROGRAMMATIC IRRADIATION OF MALIGNANT TUMORS IN MOBILE
  TECHNIQUES OF TELEGAMMETHERAPY -U-
AUTHOR-(04)-YERMAKOV, V.I., VIDENSKIY, V.G., MARDYNSKIY, YU.S.,
  GOLDOBENKO, G.V.
COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 77-80

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GAMMA IRRADIATION, RADIATION BIOLOGIC EFFECT, TUMOR, MEDICAL
  APPARATUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1961   STEP NO--UR/0241/70/015/005/0077/0080

CIRC ACCESSION NO--AP0120604
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0120604
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBLE WAYS OF OPTIMIZATION
OF CONDITIONS OF IRRADATION OF MALIGNANT TUMORS WITH MOBILE TECHNIQUES
OF TELEGAMMATHERAPY INVOLVING THE USE OF A TRACING SYSTEM ARE DISCUSSED.
 THE ELABORATION OF SUCH A SYSTEM IS BASED ON THE USE OF THE EFFECT OF
SEPARATE PARAMETERS (ROTATION, SOURCE RATE, SOURCE FOCUS DISTANCE,
DIMENSIONS OF THE AXIAL FIELD) ON THE FORMATION OF THE DOSE FIELD.   IT
IS EXPECTED THAT SUCH A SYSTEM WOULD MAKE IT POSSIBLE TO ACHIEVE AN
OPTIMAL RATIO BETWEEN THE DOSE IN THE TUMOR AND THE DOSE OF WHOLEBODY
IRRADIATION OF THE PATIENT.   FACILITY: INSTITUT MEDITSINSKOY
RADIOLOGII AMN SSSR.

UNCLASSIFIED

USSR

UDC 616.981.42

D. S.

ARSHAKUNI, G. A., MELIKYAN, V. G., SARKISYAN, G. Ye., and KARDZHANYAN, D. G.,
Armenian Scientific Research Institute of Animal Husbandry and Veterinary
Science

"Cases of Isolation of B. melitensis from Cattle"

Abstract: An investigation of 81 cultures of Brucella isolated from aborted
fetuses of cattle and from slaughtered cows in the Armenian SSR indicated
that two cultures from fetuses and two cultures from slaughtered cows, respec-
tively, belonged to the species B. melitensis, while 77 of the cultures were
of the species B. abortus bovis. The results showed that occasional infection
of cattle with B. melitensis is possible in the Armenian SSR.

1/1

Immunology

TOROSYAN, S. Ye., MARDZHANYAN, D. S., MELIKYAN, D. A., and ARUTYUNYAN, V. M.,
Armenian Scientific Research Institute of Animal Husbandry and Veterinary
Medicine

"The Relationship Between Lymph Nodes and Adrenal Glands During Immunogenesis
in Rabbits With Brucellosis"

Abstract: In order to investigate the functional relationship between lymph
nodes and adrenal glands, control rabbits and previously vaccinated rabbits
were infected with Brucella melitensis strain No 74. The concentration of
specific antibrucellosis agglutinins increased in the lymph nodes faster than
in the blood. Maximum immunological reactivity in regional lymph nodes (those
near the site of inoculation) was observed on the 7th day after vaccination
and on the 20th day after infection. In mesenteric lymph nodes, immunological
reactivity developed 3-5 days later and was less intense. The agglutinin
titer in blood serum gradually increased to reach a maximum on the 20th day
after vaccination. Control rabbits had the highest agglutinin titer in blood
and in lymph nodes on the 20th day after infection. The immunological activ-
ity of the adrenal glands was determined according to the concentration of

1/2

USSR

ascorbic acid and cholesterol. The concentration of both these substances decreased in the adrenal glands on the 7th day and increased in blood serum on the 10th day after inoculation. Thus, immunogenesis involved simultaneous activation of lymph nodes and adrenal glands.

2/2

USSR   UDC 619:616,981.31-093.33

POSTOYAN, S. R., MELIKYAN, V. G., and MARDZHANYAN, D. S., Armenian Scientific
Research Institute of Animal Husbandry and Veterinary Sciences

"The Alveonasus lahorensis Neum 1908 Mite as a Possible Source of Vibrio Infection"

Abstract: The biological cycle of the Alveonasus lahorensis Naum mite has been
found to coincide with the period in which abortions of vibrio etiology are wide-
spread among sheep. Laboratory experiments were undertaken to determine the pos-
sibility of survival and periods of existence of Vibrio fetus in the mite organism,
as well as the possibility of transmission of the Vibrio infection to animals
through blood-sucking. Guinea pigs weighing 400 grams were infected subcutan-
eously and intraperitoneally with a Vibrio fetus culture of 2 million cells
isolated from aborted sheep. Examinations of mites satiated with the blood of
infected animals revealed the presence of Vibrio fetus in insect intestines. The
intestinal content of the ticks was then removed by pressure, placed in physio-
logical solution, and cultured in a test tube on meat-liver similiquid agar. The
tubes were taken then sealed with paraffin and kept at a temperature of 37°C.
Vibrios were also cultured on 10-12 day old chick embryos. Growth of Vibrios on

1/2

USSR

POSTOYAN, S. R., et al, Biologicheskiy Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 79-83

both media was observed on the 2nd and 4th days after inoculation. Further examination of the intestinal content of the mites, conducted periodically for up to 136 days, established the presence of Vibrio fetus. No Vibrio were found in the larvae and eggs, however. It was also established that, notwithstanding the fact that Alveonasus lahorensis may be a carrier of Vibrio fetus for as long as 136 days, it did not transmit vibriosis to laboratory animals by blood-sucking and therefore cannot be regarded as the causative agent of the infection.

USSR   UDC 620.173.251.1

GORB, M. L., MAREK, B. A., TEODOROVICH, O. K., Kiev

"Compressive Strength of Reinforced Copper-Tungsten Fiber Material"

Problemy Prochnosti, No 11, 1971, pp 95-97.

ABSTRACT: Results are presented from comparative compressing testing of
material based on copper, reinforced with high-strength tungsten fibers,
and metal ceramic materials with the same volumetric content of components.
It is demonstrated that the compressive strength of the reinforced material
at room temperature is double the strength of the metal ceramic material.
The mechanism of rupture of the reinforced material is described schematically.

1/1